

**METHOD AND APPARATUS FOR DIAGNOSIS AND BEHAVIOR
MODIFICATION OF AN EMBEDDED MICROCONTROLLER**

ABSTRACT OF THE DISCLOSURE

5 A method of accessing an embedded microcontroller, by programmably selecting
pins of the microcontroller for use as test lines, receiving a scan command at an input test
line pin, emulating a virtual scan path through a logical block of the microcontroller, and
transmitting scan results to an output test line pin. The microcontroller can provide such
emulation of scan testing in compliance with the JTAG standard for a test access port and
10 boundary-scan architecture. The test line pins are interconnected with a test bus structure
to form a scan ring with other components of a data processing system, such as a
microprocessor. The emulation can be used to change a functional mode of the
microcontroller, or gather diagnostic information after a system error. The
microcontroller assigns a high-priority internal interrupt routine to service test line pin
15 activity. The virtual scan path need not include all internal microcontroller resources,
and the scan path can be programmably varied by the application designer.